Dell OptiPlex 3010 Small Form Factor Owner's Manual

Regulatory Model: D04S
Regulatory Type: D04S001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Contents

Notes, Cautions, and Warnings....2

1 Working on Your Computer....7

Before Working Inside Your Computer....7

Turning Off Your Computer....8

After Working Inside Your Computer....8

2 Removing and Installing Components....9

Removing the Cover....9

Installing The Cover....9

Removing the Front Bezel....10

Installing The Front Bezel....10

Removing the Expansion Card....10

Installing The Expansion Card....11

Removing the Optical Drive....12

Installing The Optical Drive....12

Removing the Hard Drive....13

Installing The Hard Drive....14

Removing the Memory....14

Installing The Memory....15

Removing the Chassis Intrusion Switch....15

Installing The Intrusion Switch....16

Removing the Speaker....16

Installing The Speaker....17

Removing the Heat Sink and Processor....18

Installing The Heat Sink And Processor....20

Removing the Coin-Cell Battery....20

Installing The Coin-Cell Battery....21

Removing the Power-Switch Cable....21

Installing the Power-Switch Cable....22

Removing the System Fan....22

Installing The System Fan....24

Removing The Input/Output (I/O) Panel....24

Installing The Input/Output (I/O) Panel....25

Removing the Power Supply....26

Installing The Power Supply....27

Removing the System Board....28

Installing The System Board....29
Removing the Drive Cage....30
Installing The Drive Cage....31
Removing the Fan Shelter....31
Installing The Fan Shelter....32

3 System Setup....33
System Setup....33
Boot Menu....33
Boot Menu Enhancements....33
Timing Key Sequences....34
Beep Codes and Text Error Messages....34
Navigation....34
System Setup Options....35

4 Troubleshooting....41
Diagnostic LEDs....41
Diagnostic Light Patterns....41
Beep Codes....46
Error Messages....48
Address mark not found....48
Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support....49
Alert! Security override Jumper is installed....49
Attachment failed to respond....49
Bad command or file name....49
Bad error-correction code (ECC) on disk read....49
Controller has failed....49
Data error....49
Decreasing available memory....49
Diskette drive 0 seek failure....50
Diskette read failure....50
Diskette subsystem reset failed....50
Gate A20 failure....50
General failure....50
Hard-disk drive configuration error....50
Hard-disk drive controller failure....50
Hard-disk drive failure....50
Hard-disk drive read failure....50
Invalid configuration information-please run SETUP program....51
Invalid Memory configuration, please populate DIMM1....51
Keyboard failure....51

Memory address line failure at address, read value expecting value 51
Memory allocation error....51
Memory data line failure at address, read value expecting value....51
Memory double word logic failure at address, read value expecting value....51
Memory odd/even logic failure at address, read value expecting value....51
Memory write/read failure at address, read value expecting value....52
Memory size in CMOS invalid....52
Memory tests terminated by keystroke....52
No boot device available....52
No boot sector on hard-disk drive....52
No timer tick interrupt 52
Non-system disk or disk error....52
Not a boot diskette....52
Plug and play configuration error....52
Read fault....53
Requested sector not found....53
Reset failed....53
Sector not found 53
Seek error 53
Shutdown failure 53
Time-of-day clock stopped 53
Time-of-day not set-please run the System Setup program 53
Timer chip counter 2 failed 53
Unexpected interrupt in protected mode....54
WARNING: Dell's Disk Monitoring System has detected that drive [0/1] on the [primary/secondary] EIDE controller is operating outside of normal specifications. It is advisable to immediately back up your data and replace your hard drive by calling your support desk or Dell....54
Write fault....54
Write fault on selected drive....54
X:\ is not accessible. The device is not ready 54

5 Specifications....55
Specification....55

6 Contacting Dell....61
Contacting Dell....61

1

Working on Your Computer

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

3. Disconnect all network cables from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets.
5. Press and hold the power button while the computer is unplugged to ground the system board.
6. Remove the cover.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:
   - In Windows 7:

     Click **Start**, then click **Shut Down.**
   - In Windows Vista:

     Click **Start**, then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.

   - In Windows XP:

     Click **Start** → **Turn Off Computer** → **Turn Off** . The computer turns off after the operating system shutdown process is complete.
2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

1. Replace the cover.

CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

2. Connect any telephone or network cables to your computer.
3. Connect your computer and all attached devices to their electrical outlets.
4. Turn on your computer.
5. If required, verify that the computer works correctly by running the Dell Diagnostics.

2

Removing and Installing Components

This section provides detailed information on how to remove or install the components from your computer.

Removing the Cover

1. Follow the procedures in Before Working Inside Your Computer.
2. Pull up the cover-release latch at the side of the computer.

3. Lift the cover upward to a 45–degree angle and remove it from the computer.

Related Links

Installing the Cover

Installing The Cover

1. Place the computer cover on the chassis.
2. Press down on the computer cover, until it clicks into place.
3. Follow the procedures in After Working Inside Your Computer.

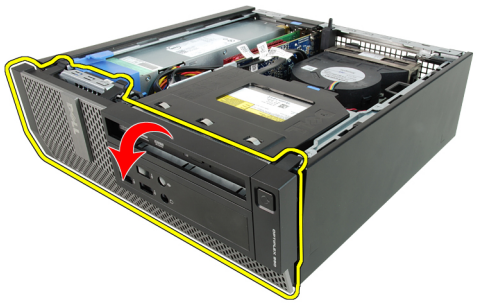
Related Links

Removing the Cover

Removing the Front Bezel

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Pry the front bezel retention clips away from the chassis.

4. Rotate the bezel away from the computer to release the hooks on the opposite edge of the bezel from the chassis.



Related Links

Installing the Front Bezel

Installing The Front Bezel

1. Insert the four hooks along the bottom edge of the front bezel into the slots on the chassis front.
2. Rotate the bezel toward the computer to engage the front bezel retention clips until they click into place.
3. Install the cover.
4. Follow the procedures in After Working Inside Your Computer.

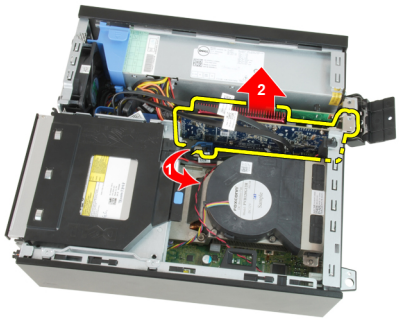
Related Links

Removing The Front Bezel

Removing the Expansion Card

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Rotate the release tab on the card-retention latch upward.

5. Pull the release lever away from the PCIe x16 card until you release the securing tab from the dent in the card. Then, ease the card up and out of its connector and remove it from the computer.



6. Pull the release lever away from the PCIe x4 card (if any) to release the securing tab from the dent in the card. Then, ease the card up and out of its connector and remove it from the computer.

Related Links

Installing the Expansion Card

Installing The Expansion Card

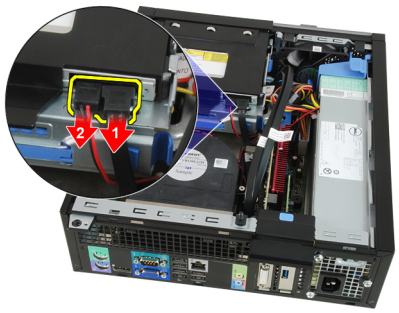
1. Insert the PCIe x4 card into the connector on the system board and press down to secure it in place.
2. Insert the PCIe x16 card (if any) into the connector on the system board and press down to secure it in place.
3. Install the front bezel.
4. Install the cover.
5. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing The Expansion Card

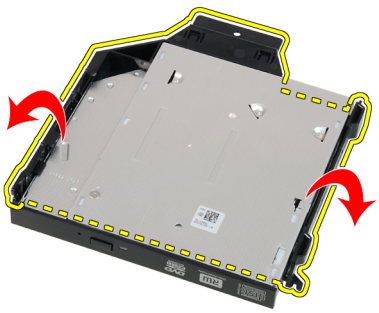
Removing the Optical Drive

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the data cable and power cable from the back of the optical drive.



4. Lift the blue tab and slide the optical drive inwards to remove it from the computer.

5. Remove the optical drive from the bracket.



Related Links

Installing the Optical Drive

Installing The Optical Drive

1. Insert the optical drive into the bracket.
2. Lift the blue tab and slide the optical drive outwards to insert it into the computer.
3. Connect the data cable and power cable to the optical drive.
4. Install the cover.

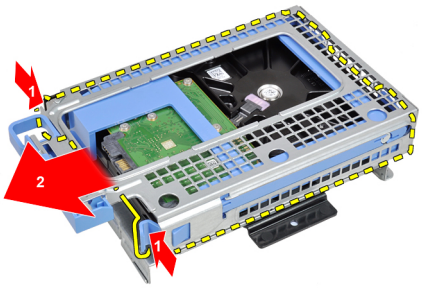
5. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing The Optical Drive

Removing the Hard Drive

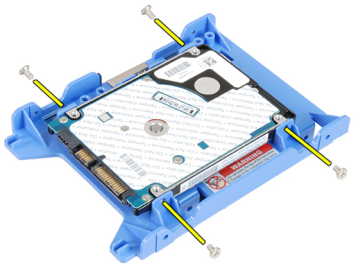
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the hard drive from the chassis.
4. Press the retention clips inwards and slide the hard-drive bracket from the drive cage.



5. Flex the hard-drive bracket and then remove the single 3.5 inch hard drive or two 2.5 inch hard drives from the bracket.

6. Release the screws that secure the 2.5 inch hard drive to the top of the hard-drive bracket.

7. Release the screws that secure the 2.5 inch hard drive to the underside of the hard-drive bracket.



Related Links

Installing the Hard Drive

Installing The Hard Drive

1. Tighten the screws to secures the two hard drives to the hard drive bracket.
2. Flex the hard-drive bracket and then insert the single hard drive or two hard drives into the bracket.
3. Press the retention clips inwards and slide the hard-drive bracket into the drive cage.
4. Install the cover.
5. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing The Hard Drive

Removing the Memory

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Release the memory-retention clips on each side of the memory modules.

6. Lift the memory modules out of the connectors on the system board.

Related Links

Installing the Memory

Installing The Memory

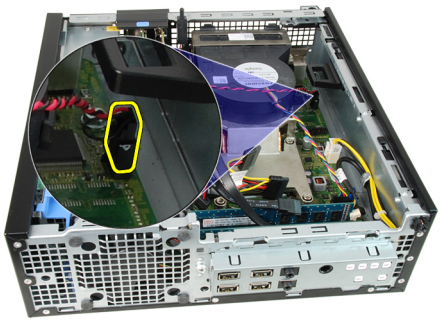
1. Insert the memory modules into the connectors on the system board. Install the memory modules in the order of A1 > B1 > A2 > B2.
2. Press down on the memory modules until the retention clips spring back to secure them in place.
3. Install the drive cage.
4. Install the front bezel.
5. Install the cover.
6. Follow the procedures in After Working Inside Your Computer.

Related Links

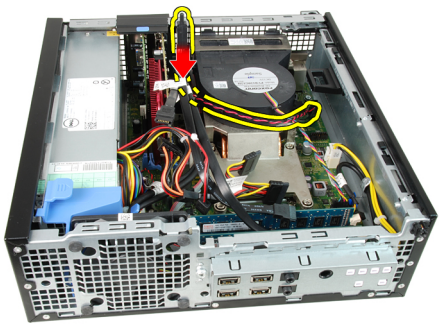
Removing The Memory

Removing the Chassis Intrusion Switch

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Disconnect the intrusion-switch cable from system board.



4. Slide the intrusion switch inwards and remove it from the system board.



Related Links

Installing the Intrusion Switch

Installing The Intrusion Switch

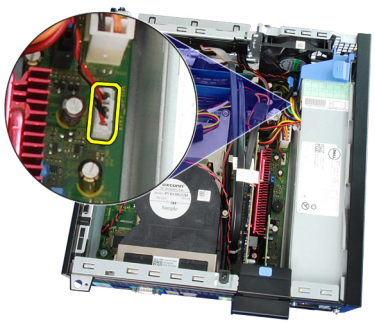
1. Insert the intrusion switch into the chassis rear and slide it outward to secure it.
2. Connect the intrusion-switch cable to the system board.
3. Install the cover.
4. Follow the procedures in After Working Inside Your Computer.

Related Links

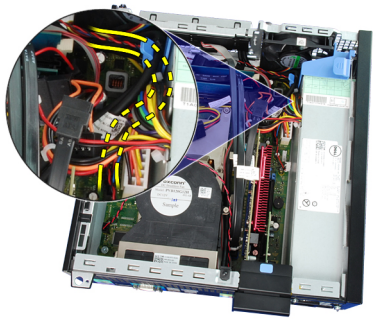
Removing the Intrusion Switch

Removing the Speaker

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Disconnect the speaker cable from the system board.



6. Unthread the speaker cable from the fan shelter clip.



7. Press the speaker securing tab, and slide the speaker towards the right of the computer to release it.

8. Remove the speaker from the chassis.

Related Links

Installing the Internal Speaker

Installing The Speaker

1. Place the speaker on the appropriate location of the chassis rear.
2. Press the speaker-securing tab and slide the speaker towards the left of the computer to secure it.
3. Thread the internal speaker cable into the fan shelter clip.
4. Connect the speaker cable to the system board.
5. Install the drive cage.
6. Install the front bezel.
7. Install the cover.
8. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing the Speaker

Removing the Heat Sink and Processor

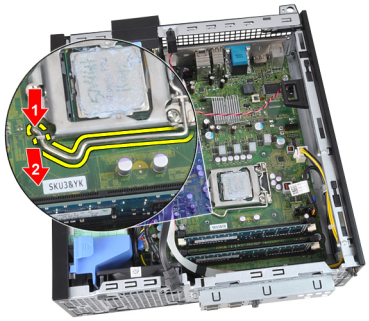
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Disconnect the heat-sink assembly cable from the system board.

6. Release the Input/Output Board or the FlyWire cable from the routing channel on the heat sink.

7. Loosen the captive screws in the order of 1,2,3 and 4.

8. Lift the heat sink assembly upwards, and remove it from the computer. Lay the assembly with the fan facing downwards, and with the thermal grease facing upwards.

9. Press the release lever down and then move it outward to release it from the retention hook that secures it.



10. Lift the processor cover.

11. Lift the processor to remove it from the socket and place it in an antistatic package.

Related Links

Installing the Heat sink and Processor

Installing The Heat Sink And Processor

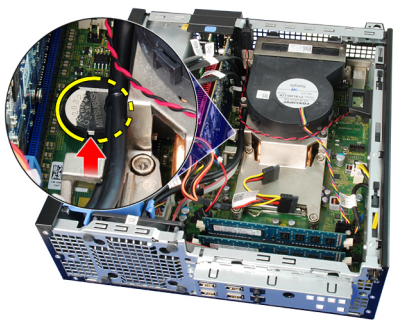
1. Insert the processor into the processor socket. Ensure the processor is properly seated.
2. Lower the processor cover.
3. Press the release lever down and then move it inward to secure it with the retention hook.
4. Place the heat sink assembly into the chassis.
5. Tighten the captive screws to secure the heat-sink assembly to the system board.
6. Secure the Input/Output Board or the FlyWire cable to the routing channel on the heat sink.
7. Connect the heat sink assembly cable to the system board.
8. Install the drive cage.
9. Install the front bezel.
10. Install the cover.
11. Follow the procedures in After Working Inside Your Computer.

Related Links

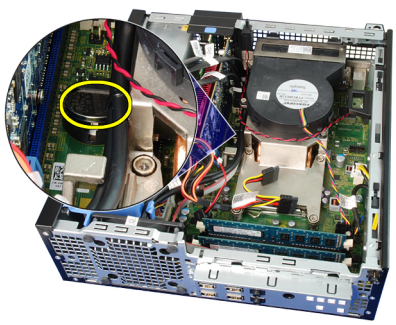
Removing the Heat sink and Processor

Removing the Coin-Cell Battery

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Press the coin-cell battery inward to allow the battery to pop up from the socket.



5. Lift the coin-cell battery out of the computer.



Related Links

Installing the Coin-Cell Battery

Installing The Coin-Cell Battery

1. Place the coin-cell battery into its slot on the system board.
2. Press the coin-cell battery downwards till it is secured.
3. Install the front bezel.
4. Install the cover.
5. Follow the procedures in After Working Inside Your Computer.

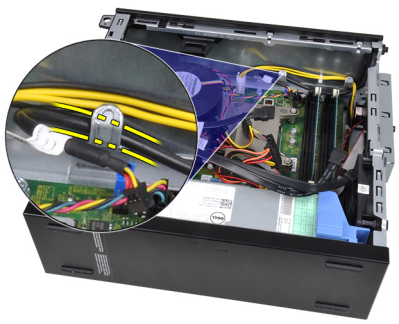
Related Links

Removing the Coin-Cell Battery

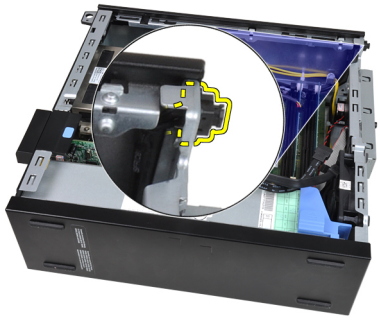
Removing the Power-Switch Cable

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Disconnect the power-switch cable from the system board.

6. Unthread the power-switch cable from the chassis clip.



7. Pry the power-switch cable away from the chassis.



8. Slide the power-switch cable out through the front of the computer.

Related Links

Installing the Power-Switch Cable

Installing the Power-Switch Cable

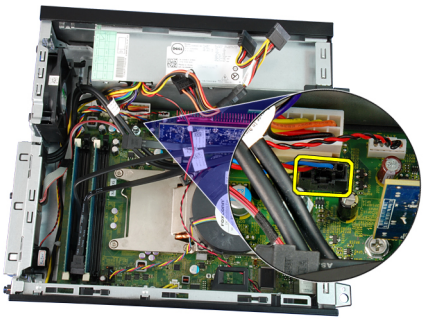
1. Slide the power-switch cable in through the front of the computer.
2. Secure the power-switch cable to the chassis.
3. Thread the power-switch cable into the chassis clip.
4. Connect the power-switch cable to the system board.
5. Install the drive cage.
6. Install the front bezel.
7. Install the cover.
8. Follow the procedures in After Working Inside Your Computer.

Related Links

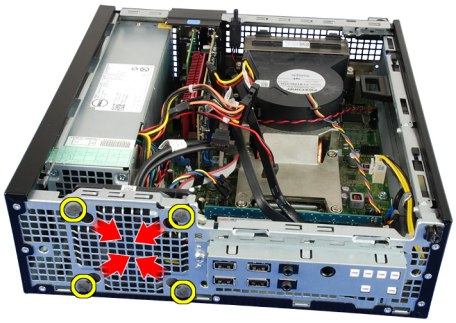
Removing the Power Switch Cable

Removing the System Fan

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Remove the fan shelter.
6. Disconnect the fan cable from the system board.

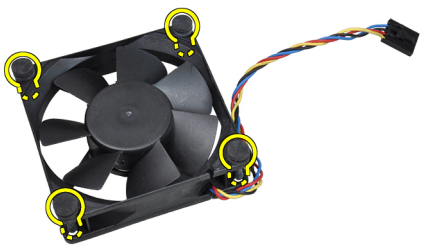


7. Slide the grommets inward along the groove and pass through the chassis.



8. Lift and remove the system fan from the computer.

9. Pry up the grommets from the system fan and remove it.



Related Links

Installing the System Fan

Installing The System Fan

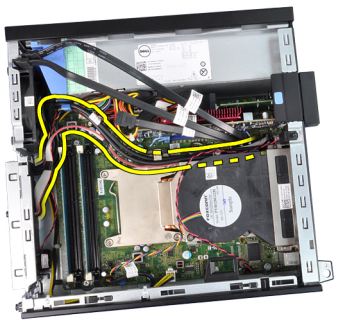
1. Insert the four grommets into the system fan.
2. Place the system fan in the chassis.
3. Pass the four grommets through the chassis and slide outward along the grooves to secure them in place.
4. Connect the fan cable to the system board.
5. Install the fan shelter.
6. Install the drive cage.
7. Install the front bezel.
8. Install the cover.
9. Follow the procedures in After Working Inside Your Computer.

Related Links

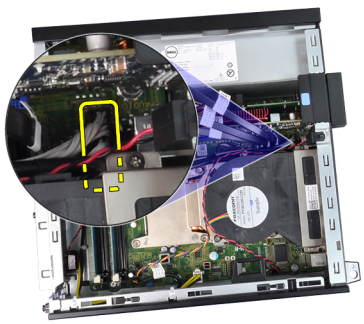
Removing the System Fan

Removing The Input/Output (I/O) Panel

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Unthread the I/O panel or the FlyWire cable from the fan-shelter clip and heat sink.



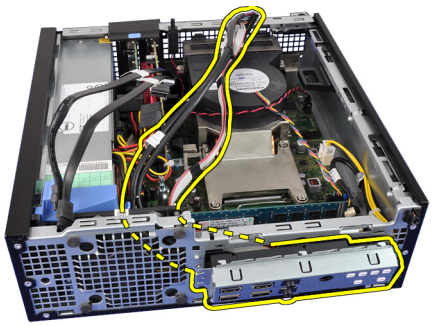
6. Disconnect the I/O panel or the FlyWire cable from the system board.



7. Remove the single screw that secures the I/O panel to the chassis.

8. Slide the I/O panel towards the right of the computer to release it from the chassis.

9. Remove the I/O panel.



Related Links

Installing The Input/Output (I/O) Panel

Installing The Input/Output (I/O) Panel

1. Insert the I/O panel into the slot on the chassis front.
2. Slide the I/O panel towards the left of the computer to secure to the chassis.
3. Tighten the screw to secure the I/O panel to the chassis.
4. Connect the I/O panel or the FlyWire cable to the system board.
5. Thread the I/O panel or the FlyWire cable into the fan-shelter clip and the routing on the heat sink.
6. Install the drive cage.
7. Install the front bezel.
8. Install the cover.
9. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing The Input/Output (I/O) Panel

Removing the Power Supply

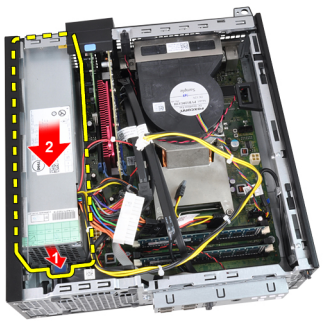
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Remove the fan shelter.
6. Disconnect the 4-pin power cable from the system board.

7. Unthread the 4–pin power cable from the chassis clips.

8. Disconnect the 24-pin power cable from the system board.

9. Remove the screws that secure the power supply, from the back of the computer.

10. Push in on the blue release tab beside the power supply, and slide the power supply towards the front of the computer.



11. Lift the power supply out of the computer.

Related Links

Installing the Power Supply

Installing The Power Supply

1. Place the power supply in the chassis and slide outward to secure it.
2. Tighten the three screws securing the power supply to the back of the computer.
3. Connect the power cable to the system board.
4. Thread the power cable into the chassis clips.
5. Connect the power cable to the system board.
6. Install the fan shelter.
7. Install the drive cage.
8. Install the front bezel.
9. Install the cover.

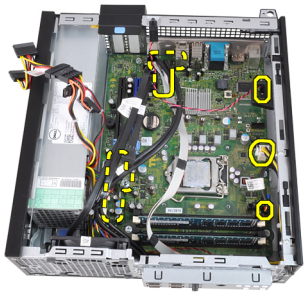
10. Follow the procedures in After Working Inside Your Computer.

Related Links

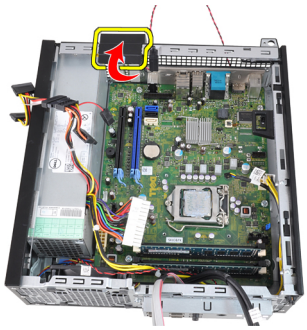
Removing the Power Supply

Removing the System Board

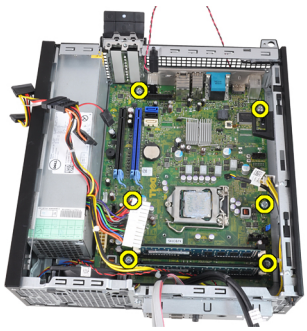
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the drive cage.
5. Remove the expansion cards.
6. Remove the heat sink and processor.
7. Remove the fan shelter.
8. Disconnect all the cables connected to the system board, and move the cables away from the chassis.



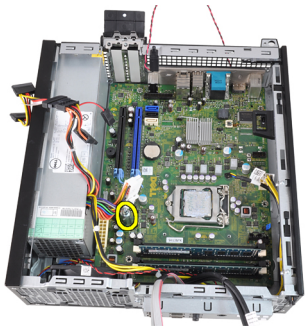
9. Lift and release the expansion-card latch, to gain access to the screws securing the system board.



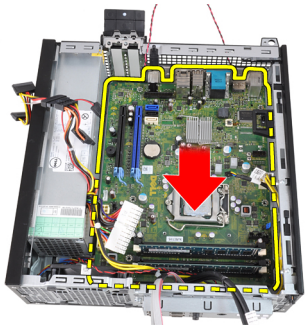
10. Remove the screws that secure the system board to the chassis.



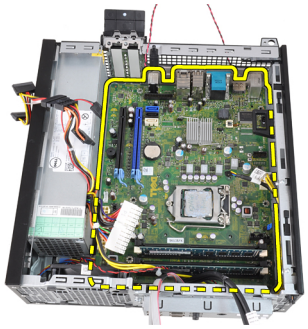
11. Remove the 7–mm hex screw that secures the system board to the chassis.



12. Slide the system board towards the front of the computer.



13. Remove the system board from the chassis.



Related Links

Installing the System Board

Installing The System Board

1. Align the system board to the port connectors on the rear of the chassis and place the system board in the chassis.
2. Tighten the 7–mm hex screw securing the system board to the chassis.
3. Tighten the screws securing the system board to the chassis.
4. Close the expansion card latch.
5. Connect the cables to the system board.
6. Connect the intrusion switch cable, SATA cables, Input/Output board cable, system fan cable, power switch cable, internal speaker cable, and the power supply cables to the system board.
7. Install the fan shelter.
8. Install the heat sink and processor.

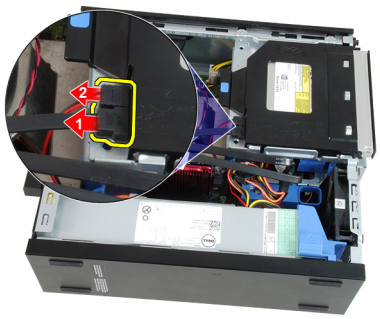
9. Install the expansion card.
10. Install the drive cage.
11. Install the front bezel.
12. Install the cover.
13. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing the System Board

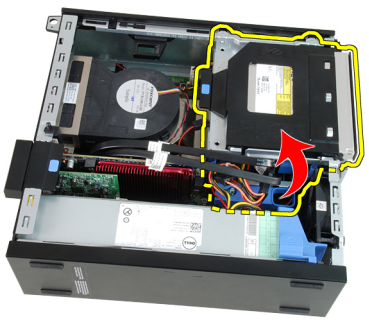
Removing the Drive Cage

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Remove the front bezel.
4. Remove the data cable and power cable from the back of the optical drive.

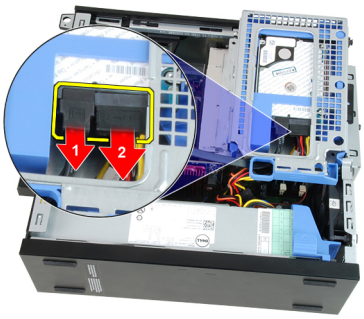


5. Slide the drive-cage handle toward the back of the computer into the unlocked position.

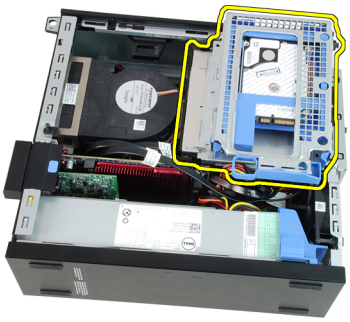
6. Rotate the drive cage upward using the handle and lift the drive cage free off the chassis.



7. Remove the data cable and power cable from the back of the hard drive.



8. Remove the drive cage from the computer.



Related Links

Installing the Drive Cage

Installing The Drive Cage

1. Place the drive cage on the edge of the computer to allow access to the cable connectors on the hard drive.
2. Connect the data cable and power cable to the back of the hard drive.
3. Flip over the drive cage and insert it into the chassis. The drive cage tabs are secured by the slots in the chassis.
4. Slide the drive-cage handle toward the front of the computer into the locked position.
5. Connect the data cable and power cable to the back of the optical drive.
6. Install the front bezel.
7. Install the cover.
8. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing The Drive Cage

Removing the Fan Shelter

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the cover.
3. Unthread the cables in the fan shelter clip.

4. Lift the fan shelter free from the computer.

Related Links

Installing the Fan Shelter

Installing The Fan Shelter

1. Insert the fan shelter into the computer.
2. Thread the cables into the fan shelter clip.
3. Install the cover.
4. Follow the procedures in After Working Inside Your Computer.

Related Links

Removing the Fan Shelter

3

System Setup

System Setup

This computer offers you the following options:

- Access System Setup by pressing <F2>
- Bring up a one-time boot menu by pressing <F12>

Press <F2> to enter System Setup and make changes to the user-definable settings. If you have trouble entering System Setup using this key, press <F2> when the keyboard LEDs first flash.

Boot Menu

This feature gives users a quick and convenient mechanism to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: floppy, CD-ROM, or hard drive).

Keystroke	Function
<Ctrl><Alt><F8>	one-time boot and diagnostics utility menu
<F12>	one-time boot and diagnostics utility menu

Boot Menu Enhancements

The boot menu enhancements are as follows:

- **Easier access** — Although the <Ctrl><Alt><F8> keystroke still exists and can be used to call up the menu, simply press <F12> during system boot to access the menu.
- **User prompting** — Not only is the menu easy to access, when you are prompted to use the keystroke on the BIOS splash screen (see image below). The keystroke is not "hidden".
- **Diagnostics options** — The boot menu includes two diagnostic options, **IDE Drive Diagnostics** (90/90 Hard Drive Diagnostics) and **Boot to the Utility Partition**. The benefit here is that you do not have to remember the <Ctrl><Alt><D> and <Ctrl><Alt><F10> keystrokes (although they still work).

NOTE: The BIOS features an option to disable either or both of the keystroke prompts under the System Security / Post Hotkeys submenu.

When you enter the <F12> or <Ctrl><Alt><F8> keystroke correctly, the computer beeps. The key sequence invokes the **Boot Device Menu**.

Since the one-time boot menu only affects the current boot, it has the added benefit of not requiring the technician to restore the customer's boot order after completing troubleshooting.

Timing Key Sequences

The keyboard is not the first device initialized by Setup. As a result, if you press a keystroke too early, you lock out the keyboard. When this happens, a keyboard error message appears on the monitor, and you cannot restart the system with the <Ctrl><Alt><Del> keys.

To avoid this scenario, wait until the keyboard is initialized before pressing the keystroke. There are two ways to know that this has happened:

- The keyboard lights flash.
- The "F2=Setup" prompt appears in the top right-hand corner of the screen during boot.

The second method is good if the monitor is already warmed up. If it is not, the system often passes the window of opportunity before the video signal is visible. If this is the case, rely on the first method—the keyboard lights—to know the keyboard is initialized.

Beep Codes and Text Error Messages

The OptiPlex BIOS is capable of displaying error messages in plain English, along with beep codes. If the BIOS determine the previous boot was unsuccessful, it displays an error message similar to the following:

```
Previous attempts at booting the system have failed at checkpoint _____. For
help resolving this problem, please note this checkpoint and contact Dell
Technical Support.
```

Navigation

The computer setup can be navigated by either the keyboard or the mouse.

Use the following keystrokes to navigate the BIOS screens:

Action	Keystroke
Expand and collapse field	<Enter>, left- or right-arrow key, or +/–
Expand or collapse all fields	< >

Action	Keystroke
Exit BIOS	<Esc> — Remain in Setup, Save/Exit, Discard/Exit
Change a setting	Left or right-arrow key
Select field to change	<Enter>
Cancel modification	<Esc>
Reset defaults	<Alt><F> or **Load Defaults** menu option

System Setup Options

NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.

General	
System Information	Displays the following information: • System Information: Displays **BIOS Version, Service Tag, Asset Tag, Ownership Date, Manufacture Date,** and the **Express Service Code**. • Memory Information: Displays **Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM 1 Size, DIMM 2 Size, DIMM 3 Size,** and **DIMM 4 Size**. • Processor Information: Displays **Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable,** and **64-Bit Technology.** • PCI Information: Displays **SLOT1, SLOT2, SLOT3, SLOT4** • Device Information: Displays **SATA-0, SATA-1, SATA-2, SATA-3,** and **LOM MAC Address.**
Boot Sequence	Allows you to specify the order in which the computer attempts to find an operating system from the devices specified in this list. • USB Storage Device • CD/DVD/CD-RW Drive • Onboard NIC
Date/Time	Allows you to set the date and time settings. Changes to the system date and time take effect immediately.

System Configuration	
Integrated NIC	Allows you to enable or disable the integrated network card. You can set the integrated NIC to: • Disabled • Enabled (default) • Enabled w/PXE • Enabled w/ImageServer **NOTE:** Depending on the computer and its installed devices, the items listed in this section may or may not appear.
Serial Port	Allows you to set the serial port settings. You can set the serial port to:

System Configuration	
	• Disabled • Auto • COM1 • COM2 • COM3 • COM4 **NOTE:** The operating system may allocate resources even though the setting is disabled.
SATA Operation	Allows you to configure the operating mode of the integrated hard drive controller. • Disabled = The SATA controllers are hidden • ATA = SATA is configured for ATA mode
Drives	Allows you to enable or disable the various drives on-board: • SATA-0 • SATA-1 • SATA-2 • SATA-3
Smart Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This option is disabled by default.
USB Configuration	Allows you to enable or disable the integrated USB controller for: • Boot Support • Rear Dual USB Ports • Front USB Ports • Rear Quad USB Ports
Miscellaneous Devices	Allows you to enable or disable the Wi-Fi Radio.

Security	
Administrative Password	Allows you to set restricted access to system setup program. This option is not set by default.
System Password	Displays the current status of the system's password security feature and allows a new system password to be assigned and verified. This option is not set by default.
Internal HDD-0 Password	Displays the current status of the password on the system's internal hard disk drive (HDD). This option is not set by default
Strong Password	This option lets you enable or disable strong passwords for the system.
Password Configuration	Allows you to control the minimum and maximum number of characters allowed for a administrative password and the system password.

Security	
Password Bypass	This option lets you bypass the System (Boot) Password and the internal HDD password prompts during a system restart. • Disabled — Always prompt for the system and internal HDD password when they are set. This option is disabled by default. • Reboot Bypass — Bypass the password prompts on Restarts (warm boots). **NOTE:** The system will always prompt for the system and internal HDD passwords when powered on from the off state (a cold boot). Also, the system will always prompt for passwords on any module bay HDDs that may be present.
Password Changes	This option lets you determine whether changes to the System and Hard Disk passwords are permitted when an administrator password is set. W **Allow Non-Admin Password Changes** - This option is enabled by default.
Computrace	This field lets you Activate or Disable the BIOS module interface of the optional Computrace Service from Absolute Software. Enables or disables the optional Computrace service designed for asset management. • **Deactivate** - This option is disabled by default. • Disable • Activate
Chassis Intrusion	Allows you to control the chassis intrusion feature. You can set this option to: • Enable • Disable • **On-Silent** — Enabled by default if chassis intrusion is detected.
CPU XD Support	Allows you to enable or disable the Execute Disable mode of the processor. This option is enabled by default.
OROM Keyboard Access	This option determines whether users are able to enter Option ROM Configuration screens via hotkeys during boot. Specifically, these settings are capable of preventing access to Intel RAID (CTRL+I) or Intel Management Engine BIOS Extension (CTRL+P/ F12) • **Enable** — User may enter OROM configuration screens via the hotkey. • **One-Time Enable** — User may enter OROM configuration screens via the hotkeys on next boot only. After next boot, the setting will revert to disabled. • **Disable** — User may not enter OROM configuration screens via the hotkey. This option is set to Enable by default.
Admin Setup Lockout	Allows you to enable or disable the option to enter Setup when an Administrative password is set. This option is not set by default.

Performance	
Multi Core Support	This field specifies whether the process will have one or all cores enabled. This option is enabled by default.
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of the processor. This option is disabled by default.
C States Control	Allows you to enable or disable additional processor sleep states. This option is disabled by default.
Hyper-Thread Control	Allows you to enable or disable the Hyper-Threading Technology. This option is enabled by default.

Power Management	
AC Recovery	Determines how the system responds when AC power is re-applied after a power loss. You can set the AC Recovery to: • Power Off • Power On • Last State This option is Power Off by default.
Auto On Time	Sets time to automatically turn on the computer. Time is kept in standard 12-hour format (hour:minutes:seconds). Change the startup time by typing the values in the time and AM/PM fields. **NOTE:** This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if **Auto Power is set to disabled**.
Deep Sleep Control	Allows you to define the controls when Deep Sleep is enabled. • Disabled • Enabled in S5 only • Enabled in S4 and S5 This option is Disabled by default.
Fan Control Override	Controls the speed of the system fan. This option is disabled by default. **NOTE:** When enabled, the fan runs at full speed.
Wake on LAN	This option allows the computer to power up from the off state when triggered by a special LAN signal. This feature only works when the computer is connected to AC power supply. • **Disabled** - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN. • **LAN Only** - Allows the system to be powered on by special LAN signals. This option is Disabled by default.

POST Behavior	
Numlock LED	Allows you to enable or disable the Numlock feature when your computer starts. This option is enabled by default.
Keyboard Errors	Allows you to enable or disable the keyboard error reporting when the computer starts. This option is enabled by default.
POST Hotkeys	Allows you to specify the function keys to display on the screen when the computer starts. **Enable F12 — Boot menu** (enabled by default)
Fast Boot	This option can speed up the boot process by bypassing some compatibility steps: • Minimal — The system boots quickly, unless the BIOS has been updated, memory changed, or the previous POST did not complete. • Thorough — The system does not skip any steps in the boot process. • Auto — This allows the operating system to control this setting (this works only when the operating system supports Simple Boot Flag). This option is set to **Thorough** by default.

Virtualization Support	
Virtualization	This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel® Virtualization Technology. **Enable Intel Virtualization Technology** - This option is disabled by default.
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. **Enable Intel Virtualization Technology for Direct I/O** - This option is disabled by default.

Maintenance	
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
SERR Messages	Controls the SERR message mechanism. This option is not set by default. Some graphics cards require that the SERR message mechanism be disabled.

Image Server	
Lookup Method	Specifies how the ImageServer looks up the server address. • Static IP • DNS (enabled by default) **NOTE:** This field is only relevant when the "Integrated NIC" control in the "System Configuration" group is set to "Enabled with ImageServer".
ImageServer IP	Specifies the primary static IP address of the ImageServer with which the client software communicates. The default IP address is **255.255.255.255**.

Image Server	
	NOTE: This field is only relevant when the "Integrated NIC" control in the "System Configuration" group is set to "Enabled with ImageServer" and when "Lookup Method" is set to "Static IP".
ImageServer Port	Specifies the primary IP port of the ImageServer with which the client communicates. The default IP port is **06910**. NOTE: This field is only relevant when the "Integrated NIC" control in the "System Configuration" group is set to "Enabled with ImageServer".
Client DHCP	Specifies how the client obtains the IP address. • Static IP • DNS (enabled by default) NOTE: This field is only relevant when the "Integrated NIC" control in the "System Configuration" group is set to "Enabled with ImageServer".
Client IP	Specifies the static IP address of the client. The default IP address is **255.255.255.255**. NOTE: This field is only relevant when the "Integrated NIC" control in the "System Configuration" group is set to "Enabled with ImageServer" and when "Client DHCP" is set to "Static IP".
Client Subnet Mask	Specifies the subnet mask of the client. The default setting is **255.255.255.255**. NOTE: This field is only relevant when the "Integrated NIC" control in the "System Configuration" group is set to "Enabled with ImageServer" and when "Client DHCP" is set to "Static IP".
Client Gateway	Specifies the gateway IP address for the client. The default setting is **255.255.255.255**. NOTE: This field is only relevant when the "Integrated NIC" control in the "System Configuration" group is set to "Enabled with ImageServer" and when "Client DHCP" is set to "Static IP".
License Status	Displays the current license status.
System Logs	
BIOS Events	Displays the system event log and allows you to: • Clear Log • Mark all Entries

4

Troubleshooting

Diagnostic LEDs

NOTE: The diagnostic LEDs only serve as an indicator of the progress through the Power-on Self-Test (POST) process. These LEDs do not indicate the problem that caused the POST routine to stop.

The diagnostic LEDs are located on the front of the chassis next to the power button. These diagnostic LEDs are only active and visible during the POST process. Once the operating system starts to load, they turn off and are no longer visible.

The system now includes pre-POST and POST LEDs in an attempt to help identifying a possible problem with the system easier and more accurate.

NOTE: The diagnostic lights will blink when the power button is amber or off, and will not blink when it is blue. This has no other significance.

Diagnostic Light Patterns

LED

Power Button

Problem Description The computer is either turned off or is not receiving power.

Troubleshooting Steps

- Re-seat the power cable in the power connector at the back of the computer and the electrical outlet.
- Bypass power strips, power extension cables, and other power protection devices to verify that the computer turns on properly.
- Ensure that any power strips being used are plugged into an electrical outlet and are turned on.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
- Ensure that the main power cable and front panel cable are securely connected to the system board.

LED

Power Button

Problem Description A possible system board failure has occurred.

Troubleshooting Steps Unplug the computer. Allow one minute for the power to drain. Plug the computer into a working electrical outlet and press the power button.

LED

Power Button

Problem Description A possible system board, power supply, or peripheral failure has occurred.

Troubleshooting Steps

- Power off computer, leaving the computer plugged in. Press and hold the power supply test button at the rear of the power supply unit. If the LED next to the switch illuminates, the problem may be with your system board.
- If the LED next to the switch does not illuminate, disconnect all internal and external peripherals, and press and hold the power supply test button. If it illuminates, there could be a problem with a peripheral.
- If the LED still does not illuminate, remove the PSU connections from the system board, then press and hold the power supply button. If it illuminates, there could be a problem with the system board.
- If the LED still does not illuminate, the problem is with the power supply.

LED

Power Button

Problem Description Memory modules are detected, but a memory power failure has occurred.

Troubleshooting Steps

- If two or more memory modules are installed, remove the modules, then re-install one module and re-start the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. If only one memory module is installed, try moving it to a different DIMM connector and re-start the computer.
- If available, install verified working memory of the same type into your computer.

LED

Power Button

Problem Description BIOS may be corrupt or missing.

Troubleshooting Steps The computer hardware is operating normally but the BIOS may be corrupt or missing.

LED

Power Button

Problem Description A possible system board failure has occurred.

Troubleshooting Steps Remove all peripheral cards from the PCI and PCI-E slots and re-start the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one.

LED

Power Button

Problem Description Power connector not installed properly.

Troubleshooting Steps Re-seat the 2x2 power connector from the power supply unit.

LED

Power Button

Problem Description Possible peripheral card or system board failure has occurred.

Troubleshooting Steps Remove all peripheral cards from the PCI and PCI-E slots and re-start the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one.

LED

Power Button

Problem Description A possible system board failure has occurred.

Troubleshooting Steps

- Disconnect all internal and external peripherals, and re-start the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one.
- If the problem persists, the system board is faulty.

LED

Power Button

Problem Description A possible coin cell battery failure has occurred.

Troubleshooting Steps Remove the coin cell battery for one minute, reinstall the battery, and restart.

LED

Power Button

Problem Description A possible processor failure has occurred.

Troubleshooting Steps Re-seat the processor.

LED

Power Button

Problem Description Memory modules are detected, but a memory failure has occurred.

Troubleshooting Steps

- If two or more memory modules are installed, remove the modules, then re-install one module and re-start the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error.
- If available, install working memory of the same type into your computer.

LED

Power Button

Problem Description A possible hard drive failure has occurred.

Troubleshooting Steps Re-seat all power and data cables.

LED

Power Button

Problem Description A possible USB failure has occurred.

Troubleshooting Steps Re-install all USB devices and check all cable connections.

LED

Power Button

Problem Description No memory modules are detected.

Troubleshooting Steps

- If two or more memory modules are installed, remove the modules, then reinstall one module and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error.
- If available, install working memory of the same type into your computer.

LED

Power Button

Problem Description Memory modules are detected, but a memory configuration or compatibility error has occurred.

Troubleshooting Steps

- Ensure that no special requirements for memory module/connector placement exist.
- Ensure that the memory you are using is supported by your computer.

LED

Power Button

Problem Description A possible expansion card failure has occurred.

Troubleshooting Steps

- Determine if a conflict exists by removing an expansion card (not a graphics card) and restarting the computer.
- If the problem persists, reinstall the card you removed, then remove a different card and restart the computer.
- Repeat this process for each expansion card installed. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts.

LED

Power Button	
Problem Description	A possible system board resource and/or hardware failure has occurred.
Troubleshooting Steps	• Clear CMOS. • Disconnect all internal and external peripherals, and restart the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one. • If the problem persists, the system board / system board component is faulty.
LED	
Power Button	
Problem Description	Some other failure has occurred.
Troubleshooting Steps	• Ensure that the display/monitor is plugged into a discrete graphic card. • Ensure that all hard drives and optical drive cables are properly connected to the system board. • If there is an error message on the screen identifying a problem with a device (hard drive), check the device to make sure it is functioning properly. • If the operating system is attempting to boot from a device (optical drive), check system setup to ensure the boot sequence is correct for the devices installed on your computer.

Beep Codes

The computer can emit a series of beeps during start-up if the display cannot show errors or problems. These series of beeps, called beep codes, identify various problems. The delay between each beep is 300 ms, the delay between each set of beeps is 3 sec, and the beep sound lasts 300 ms. After each beep and each set of beeps, the BIOS should detect if the user presses the power button. If so, BIOS will jump out from looping and execute the normal shutdown process and power system.

Code	1-1-2
Cause	Microprocessor register failure
Code	1-1-3
Cause	NVRAM
Code	1-1-4
Cause	ROM BIOS checksum failure
Code	1-2-1
Cause	Programmable interval timer

Code 1-2-2

Cause DMA initialization failure

Code 1-2-3

Cause DMA page register read/write failure

Code 1-3-1 through 2-4-4

Cause DIMMs not being properly identified or used

Code 3-1-1

Cause Slave DMA register failure

Code 3-1-2

Cause Master DMA register failure

Code 3-1-3

Cause Master interrupt mask register failure

Code 3-1-4

Cause Slave interrupt mask register failure

Code 3-2-2

Cause Interrupt vector loading failure

Code 3-2-4

Cause Keyboard Controller Test failure

Code 3-3-1

Cause NVRAM power loss

Code 3-3-2

Cause NVRAM configuration

Code 3-3-4

Cause Video Memory Test failure

Code 3-4-1

Cause Screen initialization failure

Code 3-4-2

Cause Screen retrace failure

Code 3-4-3

Cause Search for video ROM failure

Code 4–2–1

Cause No time tick

Code 4–2–2

Cause Shutdown failure

Code 4–2–3

Cause Gate A20 failure

Code 4–2–4

Cause Unexpected interrupt in protected mode

Code 4–3–1

Cause Memory failure above address 0FFFFh

Code 4–3–3

Cause Timer-chip counter 2 failure

Code 4–3–4

Cause Time-of-day clock stopped

Code 4–4–1

Cause Serial or parallel port test failure

Code 4–4–2

Cause Failure to decompress code to shadowed memory

Code 4–4–3

Cause Math coprocessor test failure

Code 4–4–4

Cause Cache test failure

Error Messages

Address mark not found

Description The BIOS found a faulty disk sector or could not find a particular disk sector.

Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support.

Description The computer failed to complete the boot routine three consecutive times for the same error. Contact Dell and report the checkpoint code (nnnn) to the support technician

Alert! Security override Jumper is installed.

Description The MFG_MODE jumper has been set and AMT Management features are disabled until it is removed.

Attachment failed to respond

Description The floppy or hard drive controller cannot send data to the associated drive.

Bad command or file name

Description Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct pathname.

Bad error-correction code (ECC) on disk read

Description The floppy or hard drive controller detected an uncorrectable read error.

Controller has failed

Description The hard drive or the associated controller is defective.

Data error

Description The floppy or hard drive cannot read the data. For the Windows operating system, run the chkdsk utility to check the file structure of the floppy or hard drive. For any other operating system, run the appropriate corresponding utility.

Decreasing available memory

Description One or more memory modules may be faulty or improperly seated. Re-install the memory modules and, if necessary, replace them.

Diskette drive 0 seek failure

Description A cable may be loose or the computer configuration information may not match the hardware configuration.

Diskette read failure

Description The floppy disk may be defective or a cable may be loose. If the drive access light turns on, try a different disk.

Diskette subsystem reset failed

Description The floppy drive controller may be faulty.

Gate A20 failure

Description One or more memory modules may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

General failure

Description The operating system is unable to carry out the command. This message is usually followed by specific information—for example, **Printer out of paper**. Take the appropriate action to resolve the problem.

Hard-disk drive configuration error

Description The hard drive failed initialization.

Hard-disk drive controller failure

Description The hard drive failed initialization.

Hard-disk drive failure

Description The hard drive failed initialization.

Hard-disk drive read failure

Description The hard drive failed initialization.

Invalid configuration information-please run SETUP program

Description The computer configuration information does not match the hardware configuration.

Invalid Memory configuration, please populate DIMM1

Description DIMM1 slot does not recognize a memory module. The module should be re-seated or installed.

Keyboard failure

Description A cable or connector may be loose, or the keyboard or keyboard/mouse controller may be faulty.

Memory address line failure at address, read value expecting value

Description A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

Memory allocation error

Description The software you are attempting to run is conflicting with the operating system, another program, or a utility.

Memory data line failure at address, read value expecting value

Description A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

Memory double word logic failure at address, read value expecting value

Description A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

Memory odd/even logic failure at address, read value expecting value

Description A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them

Memory write/read failure at address, read value expecting value

Description A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

Memory size in CMOS invalid

Description The amount of memory recorded in the computer configuration information does not match the memory installed in the computer.

Memory tests terminated by keystroke

Description A keystroke interrupted the memory test.

No boot device available

Description The computer cannot find the floppy disk or hard drive.

No boot sector on hard-disk drive

Description The computer configuration information in System Setup may be incorrect.

No timer tick interrupt

Description A chip on the system board might be malfunctioning.

Non-system disk or disk error

Description The floppy disk in drive A does not have a bootable operating system installed on it. Either replace the floppy disk with one that has a bootable operating system, or remove the floppy disk from drive A and restart the computer.

Not a boot diskette

Description The operating system is trying to boot to a floppy disk that does not have a bootable operating system installed on it. Insert a bootable floppy disk.

Plug and play configuration error

Description The computer encountered a problem while trying to configure one or more cards.

Read fault

Description The operating system cannot read from the floppy or hard drive, the computer could not find a particular sector on the disk, or the requested sector is defective.

Requested sector not found

Description The operating system cannot read from the floppy or hard drive, the computer could not find a particular sector on the disk, or the requested sector is defective.

Reset failed

Description The disk re-set operation failed.

Sector not found

Description The operating system cannot locate a sector on the floppy or hard drive.

Seek error

Description The operating system cannot find a specific track on the floppy disk or hard drive.

Shutdown failure

Description A chip on the system board might be malfunctioning.

Time-of-day clock stopped

Description The battery might be dead.

Time-of-day not set-please run the System Setup program

Description The time or date stored in System Setup does not match the computer clock.

Timer chip counter 2 failed

Description A chip on the system board may be malfunctioning.

Unexpected interrupt in protected mode

Description The keyboard controller may be malfunctioning or a memory module may be loose.

WARNING: Dell's Disk Monitoring System has detected that drive [0/1] on the [primary/ secondary] EIDE controller is operating outside of normal specifications. It is advisable to immediately back up your data and replace your hard drive by calling your support desk or Dell.

Description During initial startup, the drive detected possible error conditions. When your computer finishes booting, immediately back up your data and replace your hard drive (for installation procedures, see "Adding and Removing Parts" for your computer type). If no replacement drive is immediately available and the drive is not the only bootable drive, enter System Setup and change the appropriate drive setting to **None**. Then remove the drive from the computer.

Write fault

Description The operating system cannot write to the floppy or hard drive.

Write fault on selected drive

Description The operating system cannot write to the floppy or hard drive.

X:\ is not accessible. The device is not ready

Description The floppy drive cannot read the disk. Insert a floppy disk into the drive and try again.

5

Specifications

Specification

NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click Start (or Start in Windows XP) Help and Support, and then select the option to view information about your computer.

System Information	
System Chipset	Intel H61 Express Chipset
DMA Channels	two 82C37 DMA controllers with seven independently programmable channels
Interrupt Levels	Integrated I/O APIC capability with 24 interrupts
BIOS Chip (NVRAM)	64 MB (8 MB)

Processor	
Processor type	• Intel Core i3 series • Intel Core i5 series
Total Cache	up to 8 MB cache depending on processor type

Memory	
Type	DDR3
Speed	1333 MHz
Connectors	two DIMM slots
Capacity	1 GB, 2 GB, and 4 GB
Minimum Memory	1 GB
Maximum memory	8 GB

Video	
Video type:	
Integrated	Intel HD graphics 2000
Discrete	• AMD Radeon HD 6350 • AMD Radeon HD 6450

Video	
Video memory:	
Integrated	up to 1.7 GB shared video memory (Microsoft Windows Vista and Windows 7)
Discrete	up to 1 GB

Audio	
Integrated	integrated Conexant CX20641 HD-audio codec

Network	
Integrated	integrated Realtek RTL8111E Ethernet capable of 10/100/1000 Mb/s communication

Expansion Bus	
Bus Type	PCI Express 2.0, SATA 2.0, and, USB 2.0
Bus Speed:	PCI Express: • x1-slot bidirectional speed – 1 GB/s • x16-slot bidirectional speed – 16 GB/s SATA: 1.5 Gbps, and 3.0 Gbps

Cards	
PCI Express x1	
Mini-Tower	up to three full-height cards
Desktop	up to three low-profile cards
Small Form Factor	up to one low-profile cards
PCI-Express x16	
Mini-Tower	up to one full-height cards
Desktop	up to one low-profile cards
Small Form Factor	up to one low-profile cards

Drives	
Externally Accessible (5.25–inch drive bays)	
Mini-Tower	two
Desktop	one
Small Form Factor	one slim optical drive bay
Internally Accessible:	
3.5–inch SATA drive bays	

Drives		
	Mini-Tower	two
	Desktop	one
	Small Form Factor	one

External Connectors		
Audio:		
Back Panel		
	Mini-Tower/Desktop	three connectors once each for line-out, line-in, and microphone
	Small Form Factor	two connectors for line-out and line-in/ microphone
Front Panel		two connectors for microphone and headphone
Network Adapter		one RJ45 connector
USB 2.0		
		Front Panel: 2
		Back Panel: 6
Video		15-pin VGA connector, 19-pin HDMI connector
		NOTE: Available video connectors may vary based on the graphics card selected.

System Board Connectors		
PCI Express x1 data width (maximum) — one PCI Express lane		
	Mini-Tower, Desktop	three 36-pin connector
	Small Form Factor	one 36–pin connector
PCI Express x16 data width (maximum) — 16 PCI Express lanes		
	Mini-Tower, Desktop, Small Form Factor	one 164-pin connector
Serial ATA		
	Mini-Tower,Desktop	four 7-pin connectors
	Small Form Factor	two 7-pin connectors
PS2/COM connector		one 24-pin connectors
Memory		two 240-pin connectors
System Fan		

System Board Connectors		
	Mini-Tower, Desktop	two 3-pin connector
	Small Form Factor	one 5-pin connector
Front panel control		one 16-pin, two 10–pin, and one 5-pin connector
Processor		one 1155-pin connector
Processor Fan		
	Mini-Tower, Desktop	one 4-pin connector
	Small Form Factor	one 5-pin connector
Password clear jumper		one 3-pin connector
RTC reset jumper		one 3-pin connector
Internal speaker		one 5-pin connector
Intruder connector		one 3-pin connector
Power connector		one 24-pin and one 4-pin connector

Controls and Lights	
Front of the computer:	
Power button light	Blue light — Solid blue light indicates power-on state; blinking blue light indicates sleep state of the computer. Amber light — Solid amber light when the computer does not start indicates a problem with the system board or power supply. Blinking amber light indicates a problem with the system board.
Drive activity light	Blue light — Blinking blue light indicates that the computer is reading data from or writing data to the hard drive.
Diagnostic lights	Four lights located on the front panel of the computer. For more information on the diagnostic lights, see the Service Manual at **support.dell.com/manuals**.
Back of the computer:	
Power supply diagnostic light	Green light — The power supply is turned on and is functional. The power cable must be connected to the power connector (at the back of the computer) and the electrical outlet.

Controls and Lights

NOTE: You can test the health of the power system by pressing the test button. When the system power supply voltage is within specification, the self-test LED lights up. If the LED does not light up, the power supply may be defective. AC power must be connected during this test.

Power	Wattage	Maximum Heat Dissipation	Voltage
Mini-Tower	265 W	1390 BTU/hr	100 VAC to 240 VAC, 50 Hz to 60 Hz, 5.0 A
Desktop	250 W	1312 BTU/hr	100 VAC to 240 VAC, 50 Hz to 60 Hz, 4.4 A
Small Form Factor	240 W	1259 BTU/hr	100 VAC to 240 VAC, 50 Hz to 60 Hz, 3.6 A;
Coin-cell battery	3 V CR2032 lithium coin cell		

NOTE: Heat dissipation is calculated by using the power supply wattage rating.

Physical	Height	Width	Depth	Weight
Mini-Tower	36.00 cm (14.17 inches)	17.50 cm (6.89 inches)	41.70 cm (16.42 inches)	8.87 kg (19.55 lb)
Desktop	36.00 cm (14.17 inches)	10.20 cm (4.01 inches)	41.00 cm (16.14 inches)	7.56 kg (16.67 lb)
Small Form Factor	29.00 cm (11.42 inches)	9.26 cm (3.65 inches)	31.20 cm (12.28 inches)	5.70 kg (12.57 lb)

Environmental

Temperature range:		
	Operating	10 °C to 35 °C (50 °F to 95 °F)
	Storage	–40 °C to 65 °C (–40 °F to 149 °F)
Relative humidity (maximum):		
	Operating	20% to 80% (non-condensing)
	Storage	5% to 95% (non-condensing)
Maximum vibration:		
	Operating	0.26 GRMS
	Storage	2.2 GRMS
Maximum shock:		
	Operating	40 G
	Storage	105 G

6

Contacting Dell

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **support.dell.com**.
2. Select your support category.
3. If you are not a U.S. customer, select your country code at the bottom of the **support.dell.com** page, or select **All** to see more choices.
4. Select the appropriate service or support link based on your need.